

## **ABSTRACT OF THE INVENTION**

The present invention is directed to methods and compositions for Tnpl-mediated genetic engineering using the *Bacillus thuringiensis* recombinase Tnpl and the Tnpl recombination substrates TRT or TRT', and variants thereof. In particular, the invention relates to TRT or TRT' sequences, and variants thereof, vectors, cells and kits useful for Tnpl-mediated genetic recombination, as well as methods for the use of TRT or TRT' sequences for Tnpl-mediated genetic engineering.

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